



An Energy Efficiency Workshop & Exposition

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Palm Springs, California

# *Renewable Power Purchasing*

Chandra Shah

National Renewable Energy Laboratory

303-384-7557, [chandra\\_shah@nrel.gov](mailto:chandra_shah@nrel.gov)



## *Presentation Outline*

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- Federal Renewable Goals
- Why Use Renewables?
- Renewable Power Purchasing Options
- Green-e Certification
- Renewable Power Purchase Process
- Federal Renewable Power Purchases
- FEMP Assistance & Other Resources



## *Executive Order 13123*

*“Greening the Government Through Efficient Energy Management”*

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- Section 404c Electricity Use
  - Include renewable power provisions in electricity RFP's
  - Can use energy efficiency savings to pay premium
  
- Renewables Goal: 2.5% by 2005
  - Section 503b - Develop federal renewable goal
  - Renewable Definition: Solar, wind, geothermal & biomass (may be expanded to include some hydro)
  - Credit towards EE goals
  - Agencies can count systems installed after 1990



## *Other Federal Renewable Goals*

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- Department of Energy Directive
  - Issued April 2000 by former Secretary Richardson
  - 3% of DOE electricity from non-hydro renewable energy by 2005, 7.5% by 2010
  - Secretary Abraham may issue new Directive (but has not done so yet)
  
- Wind Powering America
  - Entice federal agencies to purchase 5% of electricity from wind by 2010





## *Why Use Renewables?*

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- Federal renewable goals
- National security
- Volatile energy market – price risk management
- Fuel diversity
- Economic development
- Reduce price through economies of scale
- Environment - help meet air quality and health goals
- Federal leadership & community relations



## *2000 U.S. Generation Mix*

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<b><u>Resource Mix</u></b>	<b><u>U.S.</u></b>
Coal	52%
Nuclear	20%
Hydro	7%
Natural Gas	16%
Oil	3%
Renewables	2%

**Source:** EIA Electric Power Annual 2000, Table 7



## *Environmental Impacts of Traditional Energy Sources*

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*Electricity generation is the leading contributor to  
U.S. air pollution...*

- *66% of Sulfur Dioxide (Acid Rain)*
- *29% of Nitrogen Oxide (Smog)*
- *36% of Carbon Dioxide (Global Warming)*

*And....*

- *21% of Mercury (toxic chemical, build-up in food chain)*
- *50% of Nuclear Waste*



## *Benefits of Renewable Power Purchases*

- Alternative if on-site option is not viable
- Relatively easy
- No systems to maintain
- Preferable for agencies with limited capital budgets



## *Renewable Power Purchasing Options*

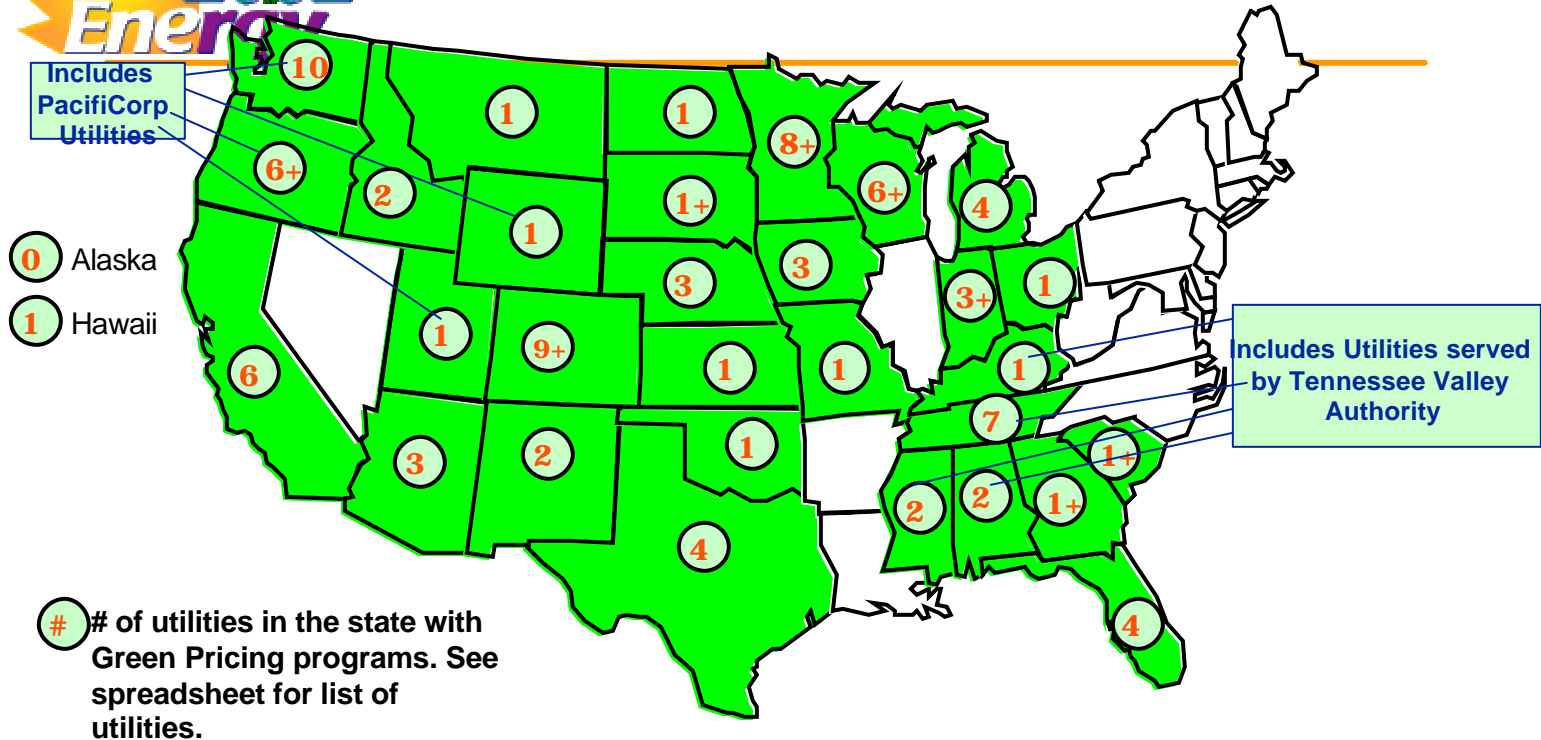
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- Regulated Utility Green Pricing
  - Voluntary program that allows customers to purchase renewable energy from their utility
  
- Competitive Electricity Market
  - Customers may purchase renewable power from a choice of suppliers through a competitive procurement
  
- Tradable Renewable Credits (TRC)
  - Competitive procurement also

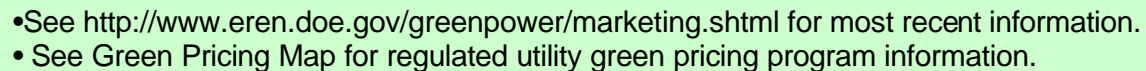


## Regulated Utility Green

### Pricing Programs (as of February 2002)



- If your utility does not currently have a green pricing program, inquire about possibility of starting one.
- See <http://www.eren.doe.gov/greenpower/pricing.shtml> for most recent information.
- See Competitive Green Power Offerings Map for information on green power products available in competitive electricity markets.





## *Tradable Renewable Credits (TRC's)*

- Also referred to as Renewable Energy Credits (REC), Green Tags, Green Energy Credits, etc
- Alternative method for purchasing renewable power
- A renewable energy facility produces two distinct products, sold separately:
  - Generic electricity (sold into local grid/power pool)
  - TRC's (the environmental and other attributes)
- Utility provider and bill does not change





## *Renewable Power vs. TRC's*

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<b>Renewable Power</b>	<b>TRC's</b>
Purchase from utility or power marketer	Purchase from TRC marketer
Limited availability	Available anywhere
One bill in most cases	Separate bills
Multiple transactions for many sites	One transaction for many sites possible



## *Green-e Certification*

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- Voluntary certification and verification program run by non-profit, Center for Resource Solutions (CRS)
- Product requirements:
  - At least 50% Renewable
  - Balance must have lower air emissions
  - No specific purchases of nuclear power
  - Requirements for % New
- Code of Conduct
- Annual audit



## *Green-e Certified Competitive Renewable Power Suppliers*

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- **Connecticut** - Connecticut Energy Cooperative, Green Mountain Energy  
[http://www.green-e.org/your\\_e\\_choices/ct\\_businessprod.html](http://www.green-e.org/your_e_choices/ct_businessprod.html)
- **New Jersey** - Green Mountain Energy  
[http://www.green-e.org/your\\_e\\_choices/nj\\_businessprod.html](http://www.green-e.org/your_e_choices/nj_businessprod.html)
- **Pennsylvania** - Energy Cooperative Association of Pennsylvania (ECAP), Green Mountain Energy, Mack Services  
[http://www.green-e.org/your\\_e\\_choices/pa\\_businessprod.html](http://www.green-e.org/your_e_choices/pa_businessprod.html)
- **Texas** - Green Mountain Energy  
[http://www.green-e.org/your\\_e\\_choices/tx\\_businessprod.html](http://www.green-e.org/your_e_choices/tx_businessprod.html)
- **Mid-Atlantic** – Pepco Energy Services



## *2002 Green-e Certified TRC Suppliers*

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- Certification program available as of March 2002
- Six certified suppliers already
  - Aquila (formerly Utilicorp)
  - Bonneville Environmental Foundation (BEF)
  - Community Energy
  - Renewable Choice Energy
  - Sterling Planet
  - Sun Power Electric

See [http://www.green-e.org/your\\_e\\_choices/trcs.html](http://www.green-e.org/your_e_choices/trcs.html) for updated list

Other TRC suppliers listed at <http://www.eren.doe.gov/greenpower/certificates.shtml>



## *Renewable Power Purchase Process*

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- Evaluate options
  - Does utility offer a Green Pricing program?
  - Is facility in a state with a competitive electricity market?
  - Are TRC's an acceptable option?
  
- Simple process if Green Pricing program
  - Sign Areawide Contract Exhibit (if your utility has one)
  - Utility Green Pricing contract
  
- RFP Required if no Green Pricing program
  - FEMP assistance available throughout process



## *RFP Considerations*

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- ❑ Product type - TRC's acceptable?
- ❑ Renewable resource location restrictions
- ❑ Renewables definition - EO13123, Green-e
- ❑ % Renewables
- ❑ % New
- ❑ Verification – “Green-e or it's equivalent”
- ❑ Evaluation criteria - best value or just low cost
- ❑ Contract length
- ❑ Renewal options



## *Premium Funding Sources*

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- Direct Appropriations
- Savings from competitive procurement of electricity or natural gas (usually through GSA or DESC)
- Mandated rate reductions
- Energy Efficiency (per EO 13123, Section 404c1)
- State renewable funds
- Other creative solutions (year-end funding, etc)



## *Lessons Learned*

- ❑ Can purchase renewable power anywhere due to TRC's
- ❑ Premiums may be lower than you expect
- ❑ Notify renewable power suppliers of RFP
- ❑ Bidder's meeting is very helpful
- ❑ Submit budget request to cover premium (per EO 13123 Section 301)
- ❑ FAR Part 23.703 Environmentally Preferable Purchasing





# Federal Sector Renewable Power Purchase Purchases

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*(Regulated Utility Green Pricing)*

<u>Federal Agency (ies)</u>	<u>Location</u>	<u>Million kWh/Year</u>	<u>Resource</u>
18 Denver Agencies <sup>1</sup>	Denver, CO	11.0 <sup>2</sup>	Wind
DOE – Hanford <sup>3</sup>	Hanford, WA	2.3	Wind/Small Hydro
DOE – WIPP	White Sands, NM	1.5	Wind
Oak Ridge National Lab.	Oak Ridge, TN	0.7	LFG/Wind/Solar
BPA	Portland, OR	0.6	Wind

<sup>1</sup> In order of size: EPA, NREL, USGS, Mint, NOAA, NIST, WAPA, Minerals Management Service, DOE Golden Field Office, DOE Denver Regional Office, NPS, Office of Personnel Management, SSA, VA Benefits Administration, U.S. Trustees, FEMA, USDA National Agricultural Statistics Service

<sup>2</sup> 11 million kWh is approximately equivalent to a 4 MW wind farm

<sup>3</sup> Hanford's purchase is part of their Bonneville Power Administration allocation.



# Federal Sector Renewable Power Purchase Purchases

*(Competitive Markets)*

<u>Federal Agency (ies)</u>	<u>Location</u>	<u>Million kWh/Year</u>	<u>Resource</u>
Air Force – Edwards AFB <sup>1</sup>	California	33.0	Wind, Biomass
NASA Johnson Space Center	Texas	10.0	Wind, Hydro
GSA – Reagan Bldg	Washington DC	9.0	75% LFG, 25% Wind
DOE Forrestal/Germantown	Washington DC	6.0	75% LFG, 25% Wind
GSA	Texas	5.5	
GSA	Pennsylvania	3.3	90% LFG, 10% Wind
GSA/VA/SSA/FFA/RRB/BOP	Illinois	2.4	Wind, Hydro

<sup>1</sup>Edwards will be ramping purchase up to 100% of load (133 million kWh) in 3 years.



# Federal Sector Renewable Power Purchase Purchases

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*(Tradable Renewable Certificates – TRC's<sup>1</sup>)*

<u>Federal Agency (ies)</u>	<u>Location</u>	<u>Million kWh/Year</u>	<u>Resource</u>
EPA	Cincinnati, OH	15.6	95% LFG/ 5% Wind
EPA	Manchester, WA	2.1	Wind
EPA	Chelmsford, MA	1.9	Wind
EPA <sup>2</sup>	Richmond, CA	1.8	LFG

<sup>1</sup> TRC's are also referred to as Green Tags, Renewable Energy Credits, etc

<sup>2</sup> Richmond contract was converted from a competitive supply contract in Sept '01.



# Federal Sector Renewable Power Purchase Purchases

*(Competitive Markets – Terminated or Complete)*

<u>Federal Agency (ies)</u>	<u>Location</u>	<u>Million kWh/Year</u>	<u>Resource</u>
US Postal Service <sup>1</sup>	California	30.0	Geothermal/Biomass/Sm Hydro
GSA <sup>2</sup>	MA & RI     4.8		LFG
Hanscom AFB <sup>2</sup>	MA	5% of load	LFG
GSA/EPA/NPS <sup>3</sup>	Pennsylvania	2.7	LFG

<sup>1</sup> USPS contract was terminated when Go-Green ceased CA operations.

<sup>2</sup> GSA MA/RI contract was terminated due to Enron's bankruptcy proceedings.

<sup>3</sup> GSA Pennsylvania contract is complete. A new RFP was issued Winter 2002.



*Reminder.....*

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*The greenest, cleanest kWh? The one you  
never use... look for energy efficiency  
opportunities first!*



# FEMP Renewable Power Purchasing Assistance

- Renewable power information and education
- Direct project support
- Agency-wide strategy development



# FEMP Renewable Power Purchasing Staff

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- David McAndrew, FEMP Program Manager  
202-586-7722, [david.mcandrew@hq.doe.gov](mailto:david.mcandrew@hq.doe.gov)
- Chandra Shah, National Renewable Energy Laboratory (NREL)  
303-384-7557, [chandra\\_shah@nrel.gov](mailto:chandra_shah@nrel.gov)
- Bill Golove, Lawrence Berkeley National Laboratory (LBNL)  
510-486-5229, [whgolove@lbl.gov](mailto:whgolove@lbl.gov)



## *Web Sites*

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- **EO 13123 –**  
<http://www.eren.doe.gov/femp/aboutfemp/exec13123.html>
- **EO 13123 Renewables Goal Guidance**  
<http://www.eren.doe.gov/femp/resources/renewableguide.html>
- **EO 13123 Guidance for Counting Renewable Power Purchases Toward Progress in Reaching GHG and EE Goals**  
<http://www.eren.doe.gov/femp/resources/countguide.html>
- **Other EO 13123 Guidance**  
<http://www.eren.doe.gov/femp/resources/guidance.html>





## *Web Sites*

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- ***Purchasing Renewable Energy: A Guidebook for Federal Agencies*** - <http://www.eren.doe.gov/femp/utility.html>
- **FEMP RPP Site**  
[http://www.eren.doe.gov/femp/utility/renew\\_power\\_purchase.html](http://www.eren.doe.gov/femp/utility/renew_power_purchase.html)
- **EPA Green Power Partnership** - <http://www.epa.gov/greenpower/>
- **Database of State Incentives for Renewable Energy**<sup>29</sup>  
(DSIRE) <http://www.dsireusa.org/>



## *Web Sites*

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- **Green Power Network**

<http://www.eren.doe.gov/greenpower/home.shtml>

**1) Green Pricing Information**

<http://www.eren.doe.gov/greenpower/pricing.shtml>

**2) Competitive Renewable Power Product Information**

<http://www.eren.doe.gov/greenpower/marketing.shtml>

**3) Tradable Renewable Certificate (TRC) Information**

<http://www.eren.doe.gov/greenpower/certificates.shtml>



## *Web Sites*

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- **Green-e Certification** - <http://www.green-e.org>
  
- **Low Impact Hydro Institute**  
<http://www.lowimpacthydro.org/>
  
- **Power Scorecard** - Environmental impact rating for different types of electric generation.  
<http://www.powerscorecard.org/>



## *Web Sites*

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- **FEMP's Restructuring Status**

<http://pnnl-utilityrestructuring.pnl.gov/electric/electric.htm>

- **EIA's Restructuring Status**

[http://www.eia.doe.gov/cneaf/electricity/chg\\_str/tab5rev.html](http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html)

- **Wind Powering America**

<http://www.eren.doe.gov/windpoweringamerica/>

- **GeoPowering the West**

<http://www.eren.doe.gov/geopoweringthewest/>



## *Web Sites*

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- **Monthly Renewable Power Newsletter. Subscribe at**  
<http://www.eren.doe.gov/greenpower/subscribe.shtml>
  
- **WAPA's Green Power and Market Research News**  
[http://www.es.wapa.gov/renew/green\\_power\\_past.cfm](http://www.es.wapa.gov/renew/green_power_past.cfm)
  
- **State Renewable Energy News**  
<http://www.nrel.gov/analysis/emma/projects/sren/>



# ***Renewable Power Purchasing Meeting***

*Tuesday, June 4*

*12:30 - 1:30 pm*

*Palm AB*